

**Notice of Allowability**

Application No.

10/632,320

Examiner

Chuc D. Tran

Applicant(s)

HAYES, GERARD J.

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to June 14, 2006.
2. ☒ The allowed claim(s) is/are 1-20, 23, 25-27 and 30-33.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.


Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 11/24/03, 10/25/04
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413),  
Paper No./Mail Date 08/29/06
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

  
THO PHAN  
PRIMARY EXAMINER

## **DETAILED ACTION**

### **EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Robert W. Glatz, Tel: (919) 854-1400 on August 28, 2006.

The application has been amended as follows:

Claim 9, line 4, "a speaker" has been changed to - - a flat-panel speaker - -;

Claim 23, line 1, "an antenna subassembly comprising" has been changed to - - an antenna subassembly for use with a wireless terminal device, comprising - -;

Claim 23, line 3, "a speaker" has been changed to - - a flat panel speaker - -;

Claim 23, line 5, "audio driver circuit coupled through a balanced feed to the speaker." has been changed to - - audio driver circuit coupled through a balanced feed to the speaker, wherein the balanced feed comprises a plurality of leads, and wherein the electronic circuit further comprises an RF isolation circuit on each lead of the balanced feed. - -;

Claim 25, line 1, "Claim 24" has been changed to - - Claim 23 - -;

Claim 26, line 1, "Claim 24" has been changed to - - Claim 23 - -;

Claim 27, line 1, "an antenna subassembly comprising" has been changed to - - an antenna subassembly for use with a wireless terminal device, comprising - -;

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Claim 27, line 5, "planar antenna." has been changed to - - planar antenna, wherein the flat-panel speaker is configured to act as a parasitic element that provides a lower frequency range frequency response for the planar antenna. - -;

Claims 24, 28 and 29 have been cancelled.

***Drawings***

2. The drawings were received on 08/01/03, 01/13/06 and 06/14/06. These drawings are accepted.

***Allowable Subject Matter***

3. Claims 1-20, 23, 25-27 and 30-33 are allowed.

***Reasons for Allowance***

4. The following is an examiner's statement of reasons for allowance:

Regarding claim 1, prior art fails to disclose or fairly suggest, in combination with the remaining limitations, a flat-panel speaker positioned proximate a back side of the electronic circuit within the housing, wherein the flat-panel speaker is formed of a piezo-electric material.

Claims 2-6, 13-14 and 16-19 are allowed since they are dependent on claim 1.

Regarding claim 7, prior art fails to disclose or fairly suggest, in combination with the remaining limitations, a flat-panel speaker positioned proximate a back side of the electronic circuit within the housing, an internal antenna positioned proximate the flat-panel speaker on the back side of the electronic circuit within the housing, wherein the internal antenna is positioned between the printed circuit board and the flat-panel speaker and wherein the forward acoustic passageway further comprises at least one acoustic aperture extending through the internal antenna.

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Claim 8 is allowed since it is dependent on claim 7.

Regarding claim 9, prior art fails to disclose or fairly suggest, in combination with the remaining limitations, a flat-panel speaker positioned proximate a back side of the electronic circuit within the housing, an internal antenna positioned proximate the speaker on the back side of the electronic circuit within the housing, and wherein the electronic circuit includes an audio driver circuit coupled through a balanced feed to the speaker.

Claims 10-12 are allowed since it is dependent on claim 9.

Regarding claim 15, prior art fails to disclose or fairly suggest, a flat-panel speaker positioned proximate a back side of the electronic circuit within the housing wherein the flat panel speaker is formed of a piezo electric material, wherein the flat-panel speaker is configured to act as a parasitic element to the internal antenna that provides an increased bandwidth frequency response for the internal antenna.

Regarding claim 20, prior art fails to disclose or fairly suggest, a flat-panel speaker integrated with the internal antenna and positioned proximate a back side of the electronic circuit within the housing, wherein the electronic circuit comprises: an audio driver circuit coupled to the flat-panel speaker through a balanced feed comprising a plurality of leads; and a signal compensation circuit in communication with the audio driver circuit and the antenna driver circuit, wherein when the internal antenna is in transmit mode the signal compensation circuit compensates a signal from the audio driver circuit to the flat-panel speaker.

Regarding claim 23, prior art fails to disclose or fairly suggest, in combination with the remaining limitations, a flat-panel speaker, wherein the speaker is integrated with the planar antenna, an electronic circuit including an audio driver circuit coupled through a balanced feed to

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the speaker, wherein the balanced feed comprises a plurality of leads, and wherein the electronic circuit further comprises an RF isolation circuit on each lead of the balanced feed.

Claims 25-26 are allowed since they are dependent on claim 23.

Regarding claim 27, prior art fails to disclose or fairly suggest, in combination with the remaining limitations, a flat-panel speaker, wherein the flat-panel speaker is integrated with the planar antenna and wherein the flat-panel speaker is configured to act as a parasitic element to the planar antenna, wherein the flat-panel speaker is configured to act as a parasitic element that provides a lower frequency range frequency response for the planar antenna.

Claims 30-33 are allowed since they are dependent on claim 7.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

*Citation of relevant prior art*

Prior art Gammon et al (USP. 7,069,061) disclose speaker assemblies and mobile terminal including the same.

Prior art Ying et al (USP. 6,995,715) disclose antenna integrated with acoustic guide channels and wireless terminals incorporating the same.

Prior art Sekine et al (USP. 6,336,037) disclose portable radio terminal device.

Prior art Masamura (USP. 6,819,939) disclose cellular phone with high-quality sound reproduction capability.

*Inquiry*


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuc D. Tran whose telephone number is (571) 272-1829. The examiner can normally be reached on M-F Flex hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy P. Callahan can be reached on (571) 272-1740. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TC  
August 28, 2006



THO PHAM  
PRIMARY EXAMINER